

REMARKS

Claims 1, 6 and 9-23 are pending in the present application. The Office Action and cited references have been considered. Favorable reconsideration is respectfully requested.

Claims 1-23 were rejected under 35 U.S.C. § 112, second paragraph, in view of the Office Action objects to the use of the phrase "gravel-or-the-like". For the record, Applicant believes that the claims as originally presented, considered in light of Applicant's specification (fully consistent with the law), would not have been confusing to those skilled in the art, and therefore the claims in their previous form are fully in accordance with §112. At **worst**, the claims in their previous form might be considered objectionable but **only** as to form.

Nevertheless, in deference to the Examiner's views and to minimize needless argument, and as indicated above, a number of cosmetic amendments have been made in the claims. Such amendments are of a formal nature only, i.e. made to place the claims in better form consistent with U.S. practice. These amendments are not "narrowing" amendments because the scope of the claims has not been reduced in these regards. No limitations have been added in these regards and none are intended. In particular, Applicant has amended the claim to recite a "gravel-like material". Applicant submits that this change does not narrow the scope of the claims and is definite under 35 U.S.C. § 112, second paragraph. In particular, the "gravel-like material" referred to in the claims is that material discussed in the specification such as gravel, mud, sand or any other material that is like gravel. One

of ordinary skill in the art would understand the claim as presented. Withdrawal of this rejection is respectfully requested.

Applicant notes with appreciation the indication that claims 9 and 17-23 would be allowable if rewritten to overcome the rejection under 35 U.S.C. § 112, second paragraph, and that claims 10-16 would be allowable if rewritten to overcome the rejection under 35 U.S.C. § 112, second paragraph, and in independent form.

Claims 1-8 were rejected under 35 U.S.C. § 103 as being unpatentable over Japanese Patent No. 030652/1979 (the '652 patent) to Araoka in view of U.S. Patent No. 4,728,256 to Araoka. This rejection is respectfully traversed for the following reasons.

Claim 1 recites a gravel-like material removing device including an impeller casing which accommodates an impeller driven by a motor in the inside thereof and has a suction opening at the center of the lower surface, a peripheral wall for preventing collapse and inflow of gravel-like material which is constituted of a cylindrical body which has no holes on an entire peripheral surface thereof and has an upper end thereof connected to a lower portion of the impeller casing and a lower end thereof opened downwardly and forms a water retention space in the inside thereof, and a water suction pipe which has an upper-end opening thereof opened in water above a gravel-like material piled level and a lower-end opening thereof communicably connected with the water retention space. This is not taught, disclosed or made obvious by the prior art of record.

As recited in the amended claim 1, the device includes, *inter alia*, a peripheral wall for preventing collapse and inflow of gravel-like material which is constituted by a cylindrical body which has no holes on an entire peripheral surface

thereof. Due to such a constitution, and more particularly due to the constitution that the peripheral wall for preventing collapse and inflow of gravel-like material is constituted by a cylindrical body which has no holes on an entire peripheral surface thereof, when the gravel-like material piled level is elevated during the period in which the operation of the suction pump which constitutes an example of the gravel-like material removing device is stopped, for example, and the impeller casing is embedded in the gravel-like material, the inflow of the gravel-like material into the inner space of the peripheral wall for preventing collapse and inflow of the gravel-like material can be completely prevented so that the water retention space which is filled with water can be ensured. on the other hand, the water suction pipe is communicably connected to this water retention space. Accordingly, when the suction pump is driven, since the fluidity of the water is higher than the fluidity of the gravel-like material which intrudes into the lower portion of the suction pump, a large quantity of water is supplied into the water retention space by suction so that the gravel-like material can be diluted with this water and is surely and effectively sucked and discharged.

Japanese reference to Araoka' 652 merely discloses the gravel-like-material removing device which this application introduced in the explanation of the prior art in conjunction with Fig. 16 and Fig. 17. The gravel-like-material removing device disclosed in Japanese reference to Araoka' 652 has following drawbacks as stated in this specification.

As shown in Fig. 16 and Fig. 17, the cylindrical strainer portion 168 has a large number of lateral holes 170 on the entire surface of the peripheral wall 169. Accordingly, when the cylindrical strainer portion 168 is completely embedded in the inside of the gravel or the like during a period in which the

operation of the suction pump is stopped, a large volume of gravel or the like which is present along the outer periphery of the peripheral wall 169 is collapsed and enters the inside of the cylindrical strainer portion 16B through these lateral holes 170 so as to fill the inside space of the cylindrical strainer portion 168 with the gravel or the like. When the suction pump is started in such a state, although water is supplied to the inside of the cylindrical strainer portion 168 through the suction pipe 175, a quantity of the gravel or the like which the suction pump intends to suck becomes overwhelmingly large compared to a quantity of water supplied through the suction pipe 175. Accordingly, the concentration of the gravel or the like is still excessively high so that the smooth suction and discharge operation becomes difficult. Paragraph bridging pages 4-5.

That is, the '652 patent neither discloses nor suggests the idea of forming the water retention space by using a cylindrical body which has no holes on an entire peripheral surface thereof.

The Examiner also cites U.S. Patent No. 4,728,256 (the '256 patent) which is directed to an underwater pump and Fig. 4 shows a strainer which has no holes on a peripheral wall thereof.

However, this invention disclosed in the '256 patent is characterized by mounting a stationary flexible-piece-winding preventing member, such as a stationary sleeve, on an outer periphery of a portion of a rotating shaft of a rotary motor to prevent a flexible piece from winding on the outer periphery of the rotary shaft. The '256 patent completely fails to disclose the idea of positively providing the water retention space in the strainer. This can be easily understood from drawings other than Fig. 4 which show other embodiments, that is, Fig. 1, Fig. 2, Fig. 3, and Fig. 5 which show the strainers in which a plurality of perforation or apertures 16a are formed. It is evident that when the underwater pump of these embodiments are

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used in the circumstances discussed in the present invention, gravel-like material will enter the inside of the strainer and no water retention space is formed.

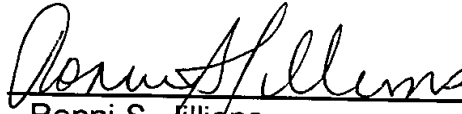
In this manner, both cited references fail to disclose and suggest the idea of positively providing the water retention space in the cylindrical body and hence, Applicant respectfully submits that claim 1 is distinguished over the prior art and is allowable.

In view of the above amendments and remarks, Applicant respectfully requests reconsideration and withdrawal of the outstanding rejections of record. Applicant submits that the application is in condition for allowance and early notice to this effect is most earnestly solicited.

If the Examiner has any questions he is invited to contact the undersigned at 202-628-5197.

Respectfully submitted,

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